

BANDO, T.
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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A game apparatus which represents a game by displaying a game image in which game an object moves in accordance with a player's operation, comprising:

an operating section for inputting, in accordance with the player's operation, at least acceleration operation input data for accelerating a movement of the object and deceleration operation input data for decelerating a movement of the object;

an acceleration sound storage section in which a series of acceleration sound data including sound data of an accelerated portion generated as a result of the object accelerating from a minimum speed to a maximum speed are stored in continuous address spaces;

a deceleration sound storage section in which a series of deceleration sound data including sound data of a decelerated portion generated as a result of the object decelerating from the maximum speed to the minimum speed are stored in continuous address spaces;

a moving speed calculating section for, based on the acceleration operation input data and the deceleration operation input data input via the operating section, calculating a moving speed of the object in a game space;

a read start address calculating section for selecting, based on operation input data input via the operating section, either one of the acceleration sound data or the deceleration sound data which are stored in the acceleration sound storage section and the deceleration

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sound storage section respectively, and for calculating a read start address of selected sound data in accordance with a ratio of a current moving speed of the object in the game space to the maximum speed;

a sound data reading section for sequentially reading selected sound data from the read start address calculated by the read start address calculating section; and

a sound output control section for outputting, as a sound, the sound data read by the sound data reading section.

2. (previously presented) The game apparatus according to claim 1, wherein for each change from one to the other between the acceleration operation input data and the deceleration operation input data which is input via the operating section, the read start address calculating section changes a calculation target at the read start address from one to the other between the acceleration sound data and the deceleration sound data, while the sound data read section sequentially reads, in response to a change of the calculation target of the read start address calculating section, sound data newly targeted for calculation from the read start address, thereby continuously reading different types of sound data before and after the change of the calculation target.

3. (previously presented) The game apparatus according to claim 1, wherein when the sound data reading section is sequentially reading the acceleration sound data in response to the acceleration operation input data from the operating section, if there is an input of the deceleration operation input data from the operating section, the read start address calculating

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section calculates the read start address of the deceleration sound based on the moving speed corresponding to a read address of the acceleration sound data being read by the sound data reading section.

4. (previously presented) The game apparatus according to claim 1, wherein when the sound data reading section is sequentially reading the deceleration sound data in response to the deceleration operation input data from the operating section, if there is an input of the acceleration operation input data from the operating section, the read address calculating section calculates the read start address of the acceleration sound data based on the moving speed corresponding to a read address of the deceleration sound data being read by the sound data reading section.

5. (currently amended) The game apparatus according to claim 1, wherein:
the acceleration sound data stored in the acceleration sound storage section contains at least sound data corresponding to an acceleration range where the object accelerates from a the minimum speed to ~~a~~the maximum speed at a constant acceleration rate; and

the deceleration sound data stored in the deceleration sound storage section contains at least sound data corresponding to a deceleration range where the object decelerates from the maximum speed to the minimum speed at a constant deceleration rate.

6. (currently amended) The game apparatus according to claim 5, wherein

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the acceleration sound data stored in the acceleration sound storage section further contains sound data corresponding to a maximum and constant speed range, where the object moves at the maximum and constant speed, and the sound data corresponding to ~~a~~the maximum and constant speed range is sequential in address to the sound data corresponding to the acceleration range; and

the sound data reading section repeatedly reads the acceleration sound data corresponding to the maximum and constant speed range, if the acceleration operation input data is continuously input from the operating section for a period of a prescribed time or more.

7. (previously presented) The game apparatus according to claim 5, wherein the deceleration sound data stored in the deceleration sound storage section further contains sound data corresponding to a minimum and constant speed range, where the object moves at the minimum and constant speed, and the sound data corresponding to a minimum and constant speed range is sequential in address to the sound data corresponding to the deceleration range; and

the sound data reading section repeatedly reads the deceleration sound data corresponding to the minimum and constant speed range, if the deceleration operation input data is continuously input from the operating section for a period of a prescribed time or more.

8. (previously presented) The game apparatus according to claim 1, wherein:

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the operating section is able to input acceleration operation input data for accelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player; and

the sound output control section includes an acceleration sound frequency correcting section for correcting a frequency of the acceleration sound data read by the sound data reading section in accordance with a change in the rate of acceleration indicated by the acceleration operation input data.

9. (previously presented) The game apparatus according to claim 1, wherein:

the operating section is able to input deceleration operation input data for decelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player; and

the sound output control section includes a deceleration sound frequency correcting section for correcting a frequency of the deceleration sound data read by the sound data reading section in accordance with a change in the rate of deceleration indicated by the deceleration operation input data.

10. (original) The game apparatus according to claim 1, wherein:

the object is a vehicle; and

the action parameter corresponds to a speed of the vehicle.

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11. (currently amended) A computer readable storage medium having recorded therein an executable game program causing a computer, which includes an operating section operated by a player, to implement a process for representing a game by displaying a game image in which game an object moves in accordance with the player's operation, the game program causing the computer to implement:

~~an input step for~~ inputting, in accordance with an operation of the operating section, at least acceleration operation input data for accelerating a movement of the object and deceleration operation input data for decelerating a movement of the object;

~~a moving speed calculating step for~~, based on the acceleration operation input data and the deceleration operation input data input via the operating section, ~~calculating a moving~~ speed of the object in a game space;

~~a read start address calculating step for~~ selecting, based on operation input data input at the inputting step, either one of the object's acceleration sound data including sound data of an accelerated portion generated as a result of the object accelerating from a minimum speed to a maximum speed or deceleration sound data including sound data of a decelerated portion generated as a result of the object decelerating from the maximum speed to the minimum speed, which are sequential to each other and previously stored in respective continuous address spaces, in accordance with a current moving speed of the object in the game space, and ~~for calculating a read start address of selected sound data corresponding to a ratio of the~~ current moving speed of the object to the maximum speed;

~~a sound data reading step for sequentially reading selected sound data from the~~ calculated read start address ~~calculated by the read start address calculating step; and~~

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~~a sound output control step for outputting, as a sound, the sound data read at the~~
reading of the selected sound data ~~reading step.~~

12. (currently amended) The storage medium having stored therein a game program according to claim 11, wherein for each change from one to the other between the acceleration operation input data and the deceleration operation input data which is input via the operating section ~~at the input step~~, the calculating of the read start address ~~ealeulating step~~ changes a calculation target at the read start address from one to the other between the acceleration sound data and the deceleration sound data, while the reading of the selected sound data ~~read step~~ sequentially reads, in response to ~~a the changed of the~~ the changed calculation target ~~at the read address calculating step~~, sound data newly targeted for calculation from the read start address, thereby continuously reading different types of sound data before and after the change of the calculation target.

13. (currently amended) The storage medium having recorded therein a game program according to claim 11, wherein when the reading of the selected sound data ~~reading step~~ is sequentially reading the acceleration sound data in response to the acceleration operation input data input at the inputting step, if the inputting step inputs the deceleration operation input data, the calculating of the read start address ~~ealeulating step~~ calculates the read start address of the deceleration sound data based on the moving speed corresponding to a read address of the acceleration sound data being read at the reading of the selected sound data ~~reading step~~.

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14. (currently amended) The storage medium having recorded therein a game program according to claim 11, wherein when the reading of the selected sound data ~~reading step~~ is sequentially reading the deceleration sound data in response to the deceleration operation input data input ~~at the inputting step~~, if the ~~inputting step~~ inputs the acceleration operation input data, the calculating of the read address ~~calculating step~~ calculates the read start address of the acceleration sound data based on the moving speed corresponding to a read address of the deceleration sound data being read at the reading of the sound data ~~reading step~~.

15. (currently amended) The storage medium having recorded therein a game program according to claim 11, wherein:

the previously stored acceleration sound data contains at least sound data corresponding to an acceleration range where the object accelerates from ~~a~~ the minimum speed to ~~a~~ the maximum speed at a constant acceleration rate; and

the previously stored deceleration sound data contains at least sound data corresponding to a deceleration range where the object decelerates from the maximum speed to the minimum speed at a constant deceleration rate.

16. (currently amended) The storage medium having recorded therein a game program according to claim 15, wherein the previously stored acceleration sound data further contains sound data corresponding to a maximum and constant speed range, where the object

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moves at the maximum and constant speed, and the sound data corresponding to ~~a~~the maximum and constant speed range is sequential in address to the sound data corresponding to the acceleration range; and

the reading of the selected sound data ~~reading step~~ repeatedly reads the acceleration sound data corresponding to the maximum and constant speed range, if the acceleration operation input data is continuously input at the inputting~~input step~~ for a period of a prescribed time or more.

17. (currently amended) The storage medium having recorded therein a game program according to claim 15, wherein the previously stored deceleration sound data further contains sound data corresponding to a minimum and constant speed range, where the object moves at the minimum and constant speed, and the sound data corresponding to ~~a~~the minimum and constant speed range is sequential in address to the sound data corresponding to the deceleration range; and

the reading of the selected sound data ~~reading step~~ repeatedly reads the deceleration sound data corresponding to the minimum and constant speed range, if the deceleration operation input data is continuously input at the inputting~~input step~~ for a period of a prescribed time or more.

18. (currently amended) The storage medium having recorded therein a game program according to claim 11, wherein:

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the inputting step inputs acceleration operation input data for accelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player via the operating section; and

the outputting of the sound output control step includes ~~an acceleration sound frequency correcting step~~ for correcting a frequency of the acceleration sound data read at the reading of the selected sound data reading step in accordance with a change in the rate of acceleration indicated by the acceleration operation input data.

19. (currently amended) The storage medium having recorded therein a game program according to claim 11, wherein:

the inputting step inputs deceleration operation input data for decelerating the movement of the object at an arbitrary rate of speed in accordance with a degree of operation designated by the player via the operating section; and

the outputting of the sound output control step includes ~~a deceleration sound frequency correcting step~~ for correcting a frequency of the deceleration sound data read at the reading of the selected sound data reading step in accordance with a change in the rate of deceleration indicated by the deceleration operation input data.

20. (original) The storage medium having recorded therein a game program according to claim 11, wherein:

the object is a vehicle; and

the action parameter corresponds to a speed of the vehicle.

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21. (currently amended) A computer implemented method for generating a sound of movement of a game object in a game space, in accordance with an action of the object, comprising:

recording sounds of a tangible object ~~moving~~ accelerating from a minimum velocity ~~A~~ to a maximum velocity ~~B~~ and decelerating from the maximum velocity to the minimum velocity over a period of time,

storing the sounds as data on a recording medium,

dividing the data into segments designated by a plurality of states corresponding to respective velocities of the object including where a first state corresponds to velocity A and a second state corresponds to velocity B,

calculating a current velocity of the game object upon receipt of a signal representing an acceleration or deceleration of the game object from a game controller,

calculating a read start address of sound data in accordance with a ratio of the current velocity and the maximum velocity,

reading the data associated with the calculated read start address ~~current velocity~~,

converting the data associated with the current velocity to a sound, ~~and~~

outputting the sound.

22. (previously presented) The method according to claim 21, wherein velocity A equals velocity B.

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23. (currently amended) The method according to claim 21, wherein the ~~step of~~ converting the data ~~further comprises the step of~~ factoring in a frequency ~~correcting step~~ correction corresponding to a change in acceleration rate.

24. (currently amended) The method according to claim 21, further comprising ~~the~~ ~~step of~~ continuing to read and convert the data and output the sounds associated with the states ranging from the state corresponding to the current velocity of the game object to the state corresponding to velocity B.